ANTUMBRA

TUNE

MANUAL

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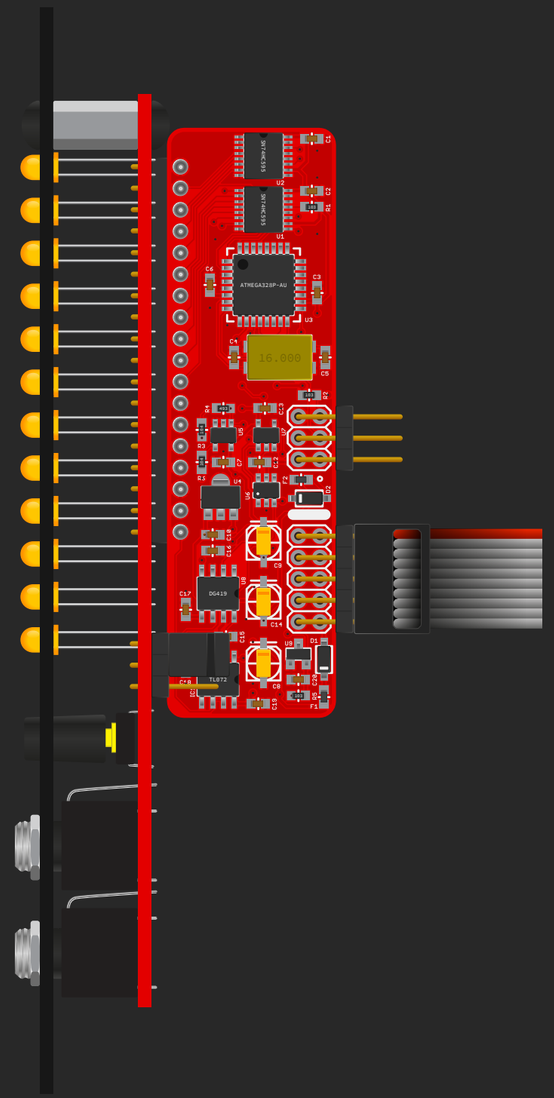
00. THANK YOU!

Thank you for purchasing the Antumbra TUNE module!
In this documentation you can find information about the installation and use of the module.



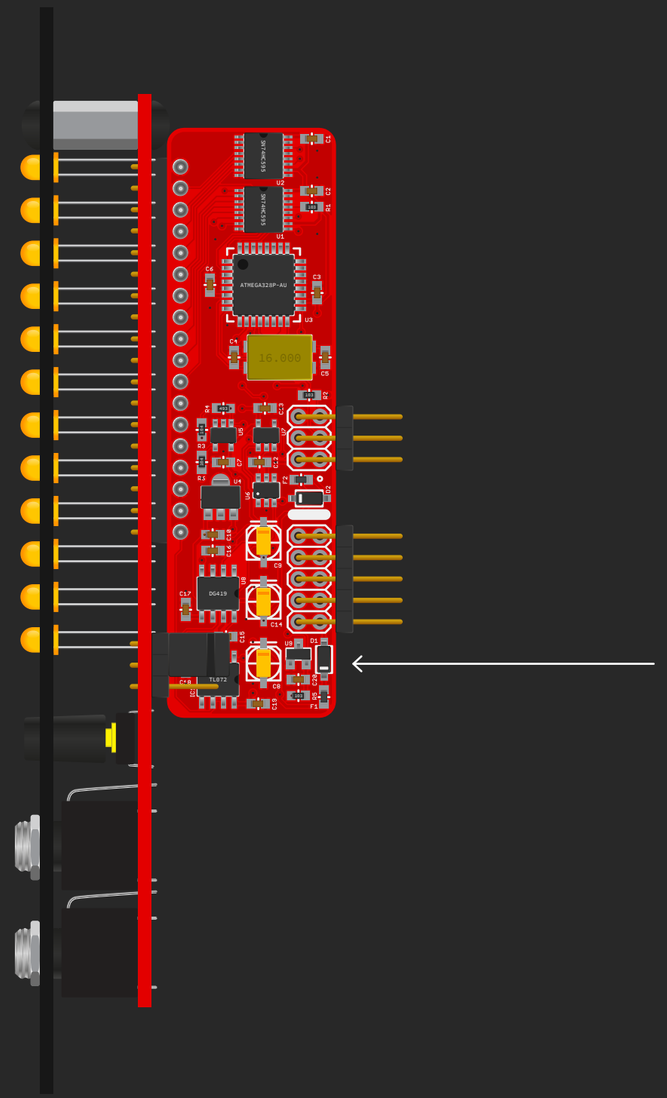
01. INSTALLATION

When you turn TUNE on the side, you should see the module as it is on the left illustration. Plug in the power cable to the power cable header pins, but BE CAREFUL with the orientation of the cable! The RED STRIPE should be towards the TOP of the module, indicated by the white line above the header pins. By doing otherwise you can potentially harm the module or even your whole system! Power off your eurorack system and connect the other end of the cable to the power source, here also pay attention to the PSU manufacturer's instructions!

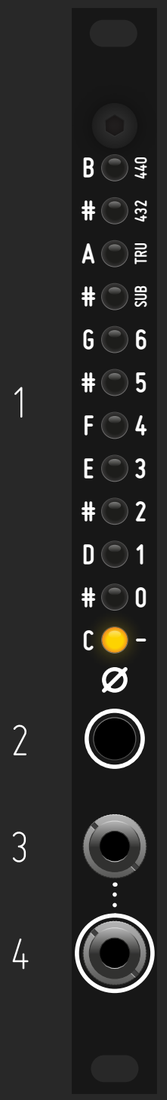
POWER CABLE HEADER: Red stripe should be on the top, next to the white marker!

02. JACK LIGHTS

On the back there is a jumper for enabling the jack lights. Note that by enabling them the module draws additional current from the 12V rail.



03. FRONT

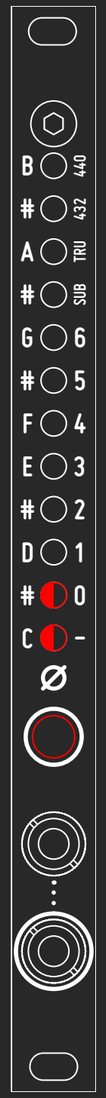


1 Display LEDs

2 Mode button

3 Input jack

4 Output jack



04. DISPLAY MODES

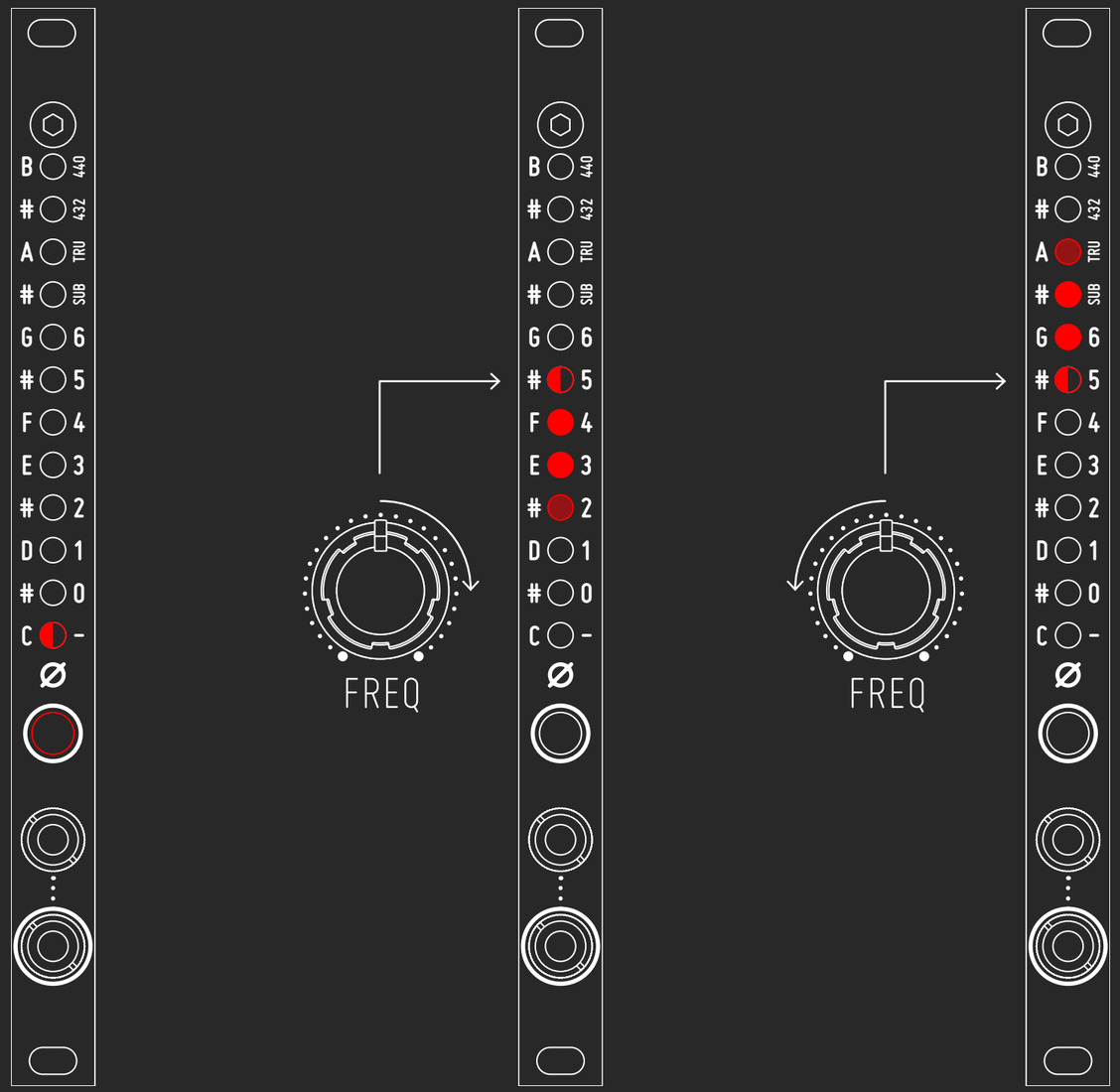
Connect the output of your VCO to the TUNE input.

Press the button for 1 second, release it when either the LED marked with 0 or - starts to blink. Now you are in display mode selection. Press the button to toggle between the two modes. See the next pages for their description.

When the LED marked with - is blinking you are in relative mode.

When the LED marked with 0 is blinking you are in strobe mode.

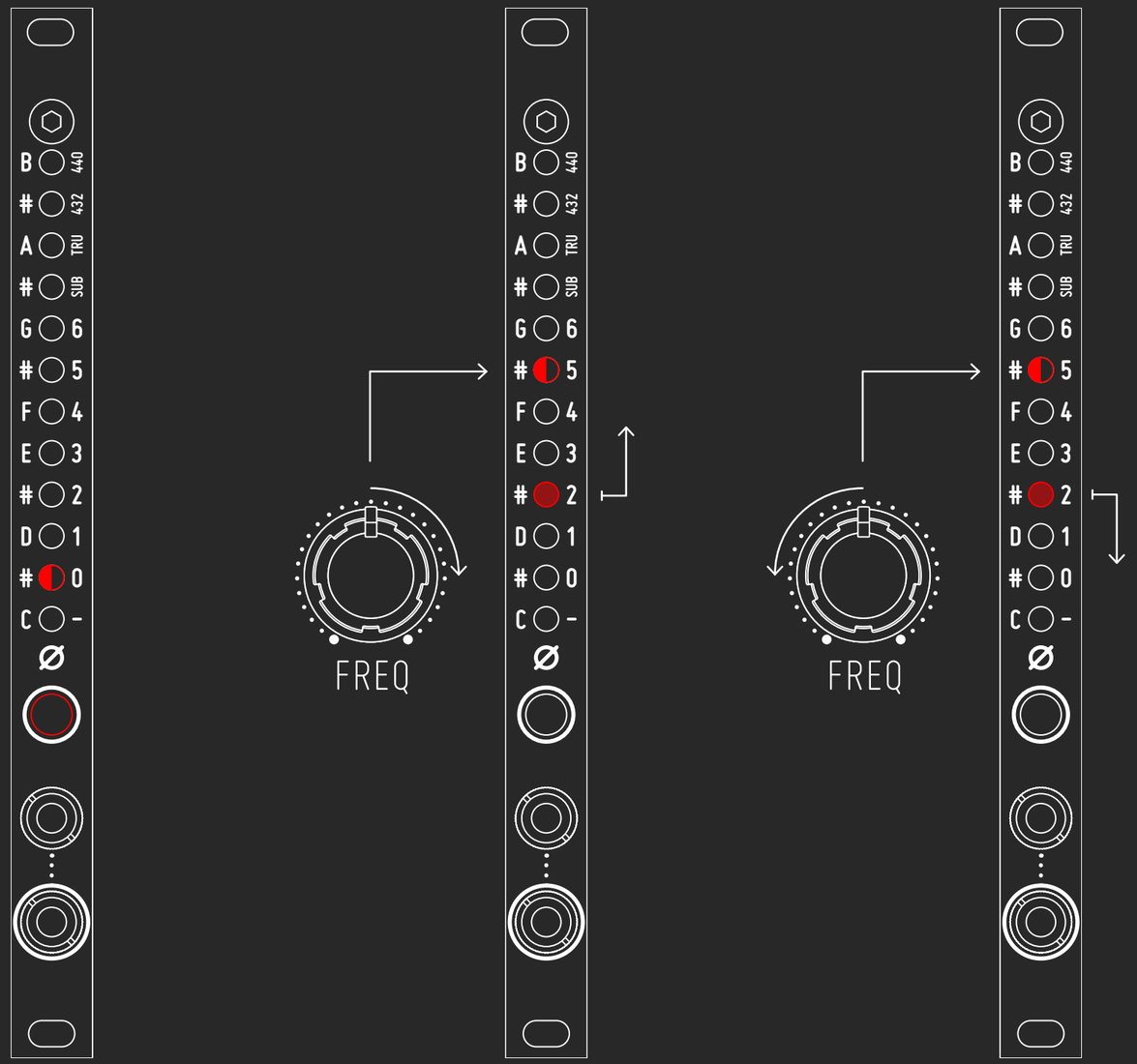
Press the button again for 1 sec to exit display mode selection.



05. RELATIVE MODE

In this mode the current nearest note blinks fast, and above or below 1-3 LEDs are lit if the VCO frequency is out of tune. If the VCO frequency is higher than the current nearest notes LEDs are lit above, if it's lower they are lit below. Adjust the VCO frequency till the LEDs around the blinking note are off and when the blinking LED turns solid you are in tune.

The current note value is written on the left of the LED.



06. STROBE MODE

In this mode the current nearest note blinks fast and is bright, an other dimmer LED is going up or down if the VCO is out of tune. The speed of the wandering LED indicates the distance from the nearest note, and it's direction displays which way the VCO has to be tuned. The closer the VCO frequency is to the nearest note, the slower the LED is. If the VCO frequency is higher than the nearest note, the LED goes downwards, if it's lower it goes up. Adjust the VCO frequency till the second LED stops.

The current note value is written on the left of the LED.

07. OUTPUT MODE

Press and hold the button for 2 seconds till the LEDs marked SUB or TRU are blinking, now release it.

Press the button to toggle between the two modes.

When the LED marked SUB is blinking the output jack produces a square wave one octave below the input frequency.

When the LED marked TRU is blinking, the input is fed to the output unmodified.

Press the button again for 1 sec to exit display mode selection.

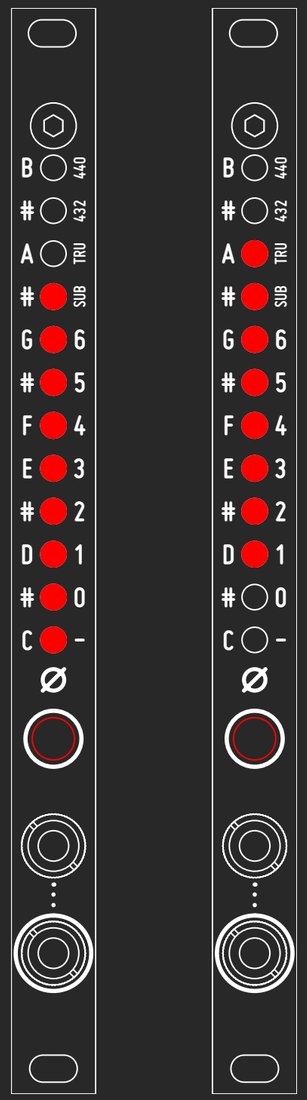
08. SCALE SELECTION

Press and hold the button for 3 seconds till the LEDs marked 432 or 440 are blinking, now release it.

Press the button to toggle between the two modes.

The tuning mode changes the scale the module tunes to, select between A432Hz and A440Hz tuning modes.

Press the button again for 1 sec to exit display mode selection.



09. VU METER

Press and hold the button for 4 seconds till the LEDs are not blinking anymore.

Press the button to toggle between 0-5V and +/-5V modes.

In 0-5V mode, the input signal is split once from -5-0V and once 0-5V, then the absolute larger is chosen. Each LED represents about 0,4V.

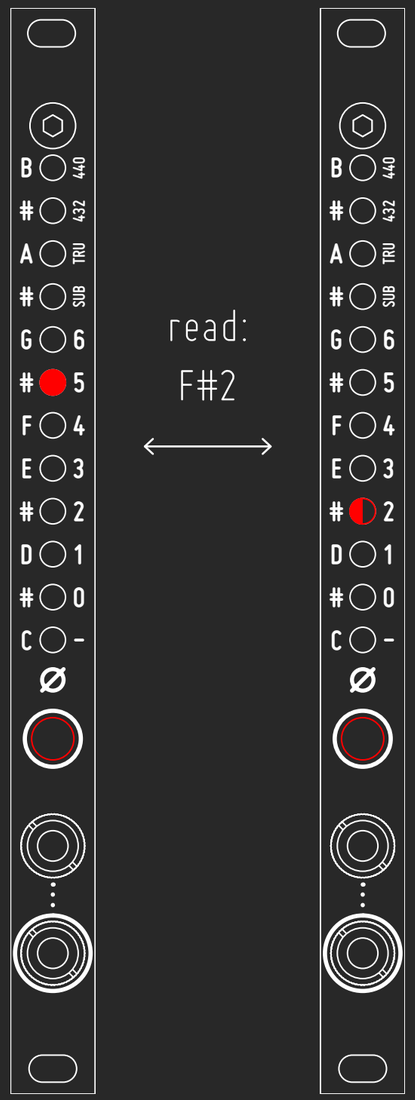
In +/-5V mode LEDs 0-5 represent -5-0V, LEDs 6-12 represent 0-5V. Each LED corresponds to about 0.8V.

In both mode the peak is held for 1sec.

To exit this mode press the button for 1sec.

10. SAVING

The module saves it's current state automatically each time you exit the menu so that it can recover your preferences on power cycles.



11. NOTE AND OCTAVE VIEW

When you are not in the menu, press the button quickly to switch between note and octave view.

Note display depends on the mode selection described previously.

Octave is displayed by a slowly blinking LED, the octave number is written on the right side of the LED, it goes from -1 to 6 octaves.

12. “SCREENSAVER” MODE

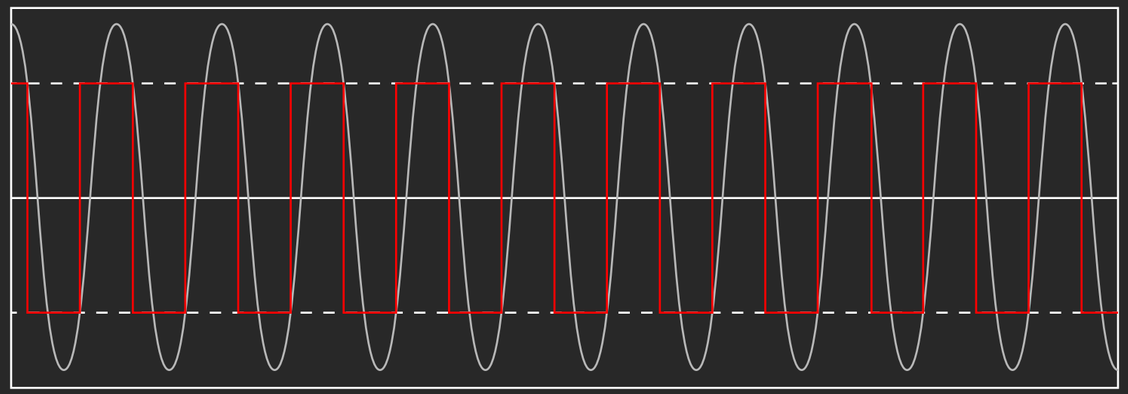
Once you start modulating your VCO, TUNE can go hectic trying to display the current note, to enter “screensaver” mode press the button twice quickly, now it shows that it’s in this mode by a single pulsating LED. To exit this mode press the button once quickly.

13. ERROR DISPLAY

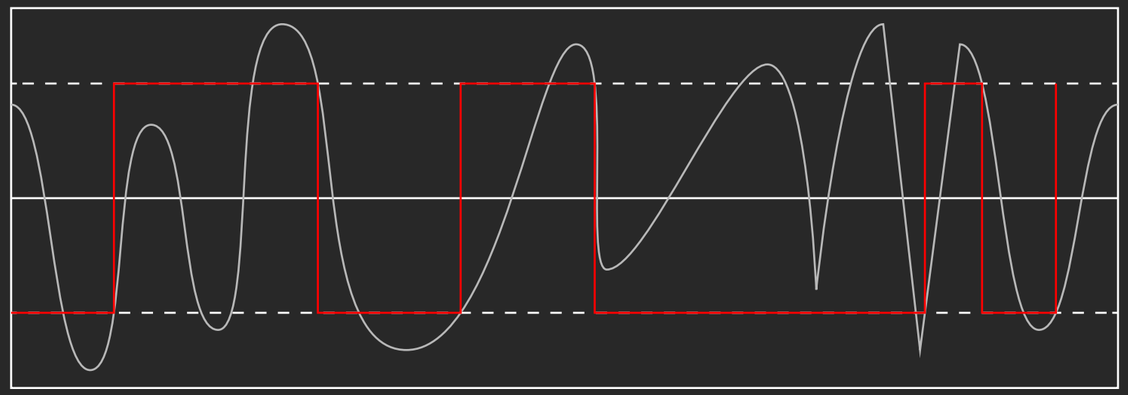
If there's no jack present on the input no LEDs should be lit. If there is signal present but it's level is too low, two LEDs going up and down from the middle start running. Increase the level till you reach the threshold and the module displays the current note.

14. ACCURACY

Optimal waveform for measurement



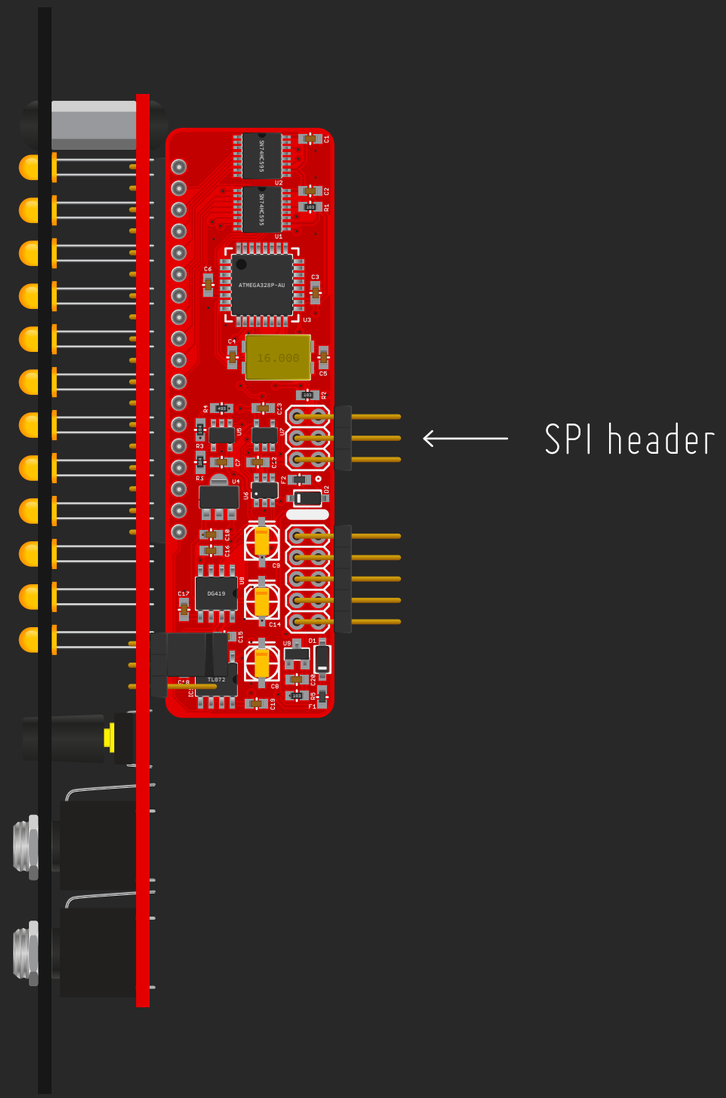
Not optimal waveform for measurement



The signal fed to TUNE is turned into a square wave and is divided by two (sub output) to increase measurement accuracy in higher frequencies. The measurement accuracy should be between +/- 3 cents.

TUNE works best with simpler/repeating waveforms, it could have a hard time measuring the frequency of chords, complex and modulated waveforms.

--- Threshold level
— Input signal
— Input signal transformed to square



15. SOFTWARE MODIFICATIONS

Feel free to modify the software of your module, but at your own risk! Antumbra doesn't take responsibility for damaged microcontrollers, if you proceed from here I assume you know what you are doing.

If you are unsure of what you are doing, please contact Antumbra in email at antumbramodular@gmail.com!

Use the 6 pin SPI header on the back to upload code to the module. You will need an AVR programmer for this.

Pin 1 is marked by a dot below the header.

TUNE is designed by David Szebenyi under Antumbra.

www.antumbra.eu

Manual by David Szebenyi (www.aman.hu)